

Connacht Regional News

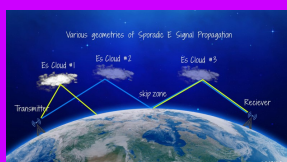
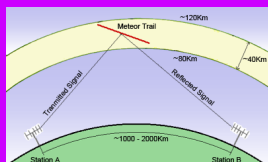
Traditiones et Spiritum Amateur Radio Servandum

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Welcome to the Fifth Edition of the Connacht Regional News

The Connacht Regional News is 100% *inclusive, unbiased*, and primarily written for the local Clubs and Groups in Connacht although there is a wealth of information that is of interest to all radio operators. More recently we have decided to include all aspects of Radio Communications and associated Groups. *Please Note: We are totally freelance and in absolutely no way, tied into or affiliated to any one National Society.* This enables us to report activities of *ALL* Radio Groups and Clubs in Ireland who wish to supply news items of interest.

It should be noted that, by taking a freelance stance, we are not favouring any Club Group or Society. If there is an absence of material from a Society or Club, it is because they did not supply material to us and this is naturally beyond our control.

We are fortunate that the West of Ireland has seven Radio Clubs within Connacht all of which are very active, as can be seen from their activities in our publication.

We do repeat forthcoming activities in several editions to give advanced notice of the event. To enable clubs and groups to prepare for them.

We promote >>ALL<< radio activities that are due to occur rather than report those that have happened. If you have an item of interest, please feel free to forward it to Steve. EI5DD, who will include it in the following newsletter.

Due to the overwhelming success and readership of the Connacht Regional news, now going viral, we will produce a publication MONTHLY.

A link may be found on the Galway VHF Group Web Page for the most recent copy of the Publication.

**We Welcome Feedback
so if you enjoyed this
publications mail Steve
EI5DD:
wright14@gmail.com**

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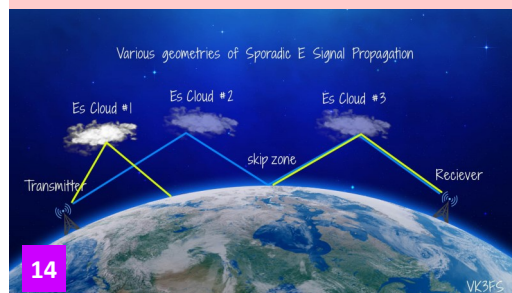
Galway Radio Club 25

Submitting Items To This Magazine

We are always delighted to receive any radio related material for this magazine.

It does take time to lay out a publication so we have deadlines as in items should be submitted by the 26th of the month giving us plenty of time to prepare for publication.

Please E-mail us in advance so that space can be allocated.



14



19



20



22



Cover Image

All aboard for Shannon Basin Radio Club - from left to right: Anthony EI6GGB, Tom EI4HCB, Roger EI6IFB, Peter (Cavan and Leitrim Railway), Brian EI8IU, and Fergus EI6IB

Views expressed in this publication do not necessarily reflect the views of the editor or those of the Galway VHF Group

News & Forthcoming Events

International Lighthouse and Lightship Weekend 20th - 21st August

For some reason or other August seems to have become the international weekend for lighthouses. Countries all over the world have become involved in one for or another of lighthouse activity. Some years ago the United States Congress declared August 7th as their National Lighthouse Day and during that first week in August amateur radio operators in America set up portable stations at lighthouses and endeavour to make contact with each other. This event is known as the US National Lighthouse Week.



In Britain, the Association of Lighthouse Keepers, [ALK](#), conducts International Lighthouse Heritage Weekend on the same weekend as the ILLW in August. Their objective is to encourage Lighthouse managers, keepers and owners to open their lighthouse or light station and related visitors centres to the public with a view to raising the profile of lighthouses, lightvessels

and other navigational aids, and preserving our maritime heritage.

However, the major event which takes place in August is the International Lighthouse Lightship Weekend, [ILLW](#), which came into being in 1998 as the Scottish Northern Lights Award run by the Ayr Amateur Radio Group. The history of this event can be found elsewhere on this site.

The ILLW usually takes place on the 3rd full weekend in August each year and attracts over 500 lighthouse entries located in over 40 countries. It is one of the most popular international amateur radio events in existence probably because there are very few rules and it is not the usual contest type event. It is also free and there are no prizes for contacting large numbers of other stations. There is little doubt that the month of August has become "Lighthouse Month" due largely to the popularity and growth of the ILLW. This year the event This year **00.01 UTC 20th August to 24.00 UTC 21st August 2022 (48 hours)**

More information and registration <https://illw.net/>

RSGB Commonwealth Games Activities



The Commonwealth Games will be held in Birmingham from Thursday the **28 July 2022 – Monday the 8th of Aug 2022**. It will see around 4,500 athletes from 72 nations and territories, compete in 19 sports across 14 competition venues. The RSGB has just published news of the various activities it is planning to link with the Games. You can get involved in one of the seven special event stations or gain one of two special operating awards. Find out more on the Society's website at www.rsgb.org/cwg

AMSAT UK Colloquium



AMSAT-UK is very happy to announce the 2022 AMSAT-UK International Space Colloquium will be held as part of the RSGB Convention on **October 8th - 9th** at the Kents Hill Park Conference Centre, Timbold Drive, Milton Keynes, MK7 6BZ. The weekend event attracts an international

audience that ranges from those involved in building and operating amateur radio satellites to beginners who wish to find out more about this fascinating branch of the hobby. Booking for the RSGB Convention is at <https://rsgb.org/main/about-us/rsgb-convention/> Details of the event can be found at <https://amsat-uk.org/colloquium/>

Russian Robinson Club Celebration

To celebrate the 20th anniversary of the Russian Robinson Club's RLHA (Russian Lighthouse Award) program, look for the following special event stations to be active until August 31st:

RA20LH (Kaliningrad region, R2F) **RN20LH** (Republic of Karelia, R1N)

RC20LH (Leningrad region, R1C) **RO20LH** (Arkhangelsk region, R1O)

RG20LH (Rostov region, R6L) **RQ20LH** (Saint Petersburg, R1A)

RK20LH (Republic of Crimea, R7K) **RT20LH** (Krasnodar Territory, R6A)

RL20LH (Primorsky Territory, R0L) **RW20LH** (Sakhalin region, R0F)

RM20LH (Vologda region, R1Q) **RZ20LH** (Murmansk region, R1Z)

QSL all callsigns via RZ3EC. Special Award is available.

Each Contact counts as 1 point. You need to get 20 points for a free e-award. Repeats are allowed on different bands, modes (each DIGI as one mode) and with different lighthouses.

For more details, see: <https://hamlog.online/club/rrc/513>

FT8DMC 5th Anniversary Special Event



To commemorate our 5th anniversary, special event stations will be on air during the FT8DMC Activity Days from **4th to 17th July 2022**. All stations will bear the FTDMC or FTDM suffix, referring to the fifth anniversary

of the FT8 Digital Mode Club. An FTDMC Anniversary Award can be earned by working the FTDMC and FTDM stations and collecting points applicable for various award classes. Please note, that working the same station on the same band in the same mode is considered a 'dupe' Contact and will not count for the award. The award will be available free in a digital format. This year you can download your Anniversary Award from our new Dashboard, please visit <https://ft8dmc.com> If you are interested in activating a special callsign the suffix must be FTDMC or FTDM. Please send a copy of the issued special callsign license to oe6vie@gmail.com no later than **10th July 2022**. The FT8DMC is not responsible for printing QSL cards or answering incoming QSL inquiries. Each special event station is responsible for answering QSL queries themselves.

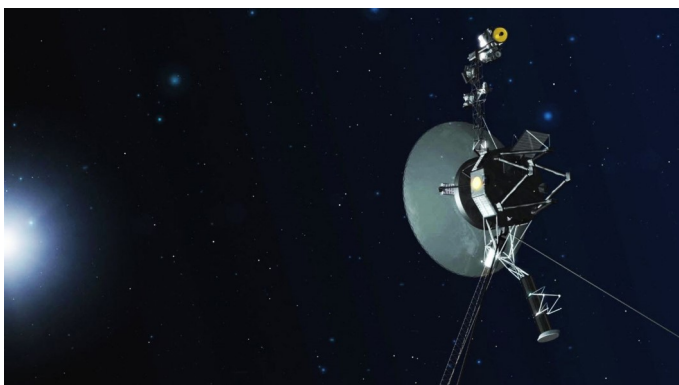
News & Forthcoming Events

IOTA Contest



The date is always the last full weekend in **July from 1200–1200 UTC**, that is 1 p.m. Saturday to 1 p.m. Sunday UK time. This year's IOTA Contest will take place on the 30th - 31st of July. The essence of the contest is to work as many island stations as possible. Although you can work any station, island or non-island, contacts with islands score more points, and only new islands count as multipliers. How do you know if a station is on an island? Because after sending the serial number, island stations also send an island reference, but non-island stations don't send any reference. The reference consists of a continent abbreviation, for example EU for Europe, and a number, allocated by IOTA Ltd. Stations on the UK mainland are in IOTA reference EU005. Other references can be found on the Islands on the Air web site. So, for example, search for "Wight" and you will see that the IOTA reference for the Isle of Wight is EU-120. The Shannon Basin Radio Club intend to set up their annual IOTA contest station on Inisbofin Island off the west coast of Galway.

NASA Prepares to Power Down Voyager after 44 Years



After more than 44 years of travelling farther from Earth than any man-made objects have before, the Voyager spacecraft are entering their very final phase. Both of the Voyagers were launched from Cape Canaveral in 1977 - with Voyager 2, actually the first to take off - taking advantage of a rare alignment (once every 176 years) of Jupiter, Saturn, Uranus and Neptune to shoot into interstellar space.

They were designed to last five years and study Jupiter and Saturn but remarkably both spacecraft are still functioning despite escaping beyond the hot plasma bubble known as the heliopause that defines the beginning of the edge of our solar system.

Speaking to the magazine Scientific American about powering down the probes, NASA physicist Ralph McNutt said: "We're at 44 and a half years, so we've done 10 times the warranty on the darn things."

Both of the spacecraft are powered by radioisotope thermoelectric generators (RTGs) - powered by the heat from decaying spheres of plutonium - although the output of these RTGs is decreasing by about four watts every year. This means instruments are being turned off one by one. As of today, Voyager 1 only has four functioning instruments left, and Voyager 2 has five.

JOTA Advanced Notice for 14th to 16th of October

Advanced notice for the forthcoming Scouts Jamboree On The Air which is an excellent opportunity for local Radio clubs and Groups to introduce amateur radio to the younger generation. If you have a local Scouts troop near you, why not introduce yourself and offer the facilities of your club station for the JOTA weekend.

Jamboree on the Air - Jamboree on the Internet (JOTA-JOTI) promotes a Scout's sense of belonging to the worldwide Scout Movement and builds cultural awareness, develops tolerance, advocates sharing and collaboration as well as demonstrates teamwork. It provides exciting opportunities for young people to explore technology and to develop technical skills including fostering innovation and creativity through communicating with other Scouts. A wide range of activities using communication technology are the chief methods of attaining these goals.

JOTA-JOTI strives for a meaningful engagement of as many young people from as many parts of the world as possible annually on the third weekend in October. This weekend is also an occasion to celebrate Scouting and to generate positive energy to support the development of the Scout Movement.

The event seeks to promote quality Scouting in a manner faithful to the purpose, principles and method of Scouting and consistent with the needs and aspirations of young people in today's world. The JOTA-JOTI programme shall be a reflection of the Promise, Law, Principles and Method of Scouting, as defined by the WOSM Constitution, and shall also reflect the most up-to-date policies and initiatives of WOSM relating to youth programme for all ages.

JOTA-JOTI is an annual event that takes place the third weekend of October. Future dates are: - **14th to 16th of October 2022.**

For more information please visit the event website:

www.world-jotajoti.info

Mayo Activity Net

2100hrs - 2130hrs 145.375 AM

2130hrs - till late 145.375 FM

Wednesday nights

Irish Net

Active not only on Sundays, but most weekdays starting at around **16:00 UTC**, the **informal gathering on 14.156 MHz** frequently suffers from QRM during contests and DXers unaware of this long standing net of North American operators with an Irish connection. In a recent contact on 20m with WI1DP, QTH Tuscon Arizona, operator Jerry confirmed that the net now also uses the **17m band operating on 18.114 MHz**, avoiding the increased QRM on 20m and taking advantage of improved propagation conditions

News & Forthcoming Events

International Air Ambulance Week 2022



International Air Ambulance Week 2022 is a 9 day Amateur Radio event commencing on the 3rd of September. By putting on a station

you will hopefully help raise awareness of the work these dedicated people do. They need all the support they can get. We would hope and expect that more than one station will support the same Air Ambulance, the more support each one gets, the better. So, if you see your local service already listed as being supported by an amateur station, there is no reason why you cannot register your own station in support too. Please get the word out there so they can continue to be there if we need them.

The intention of this event will be to help support the donation funded flying medical services around the world, by operating your special event station during some of the 9 days during which this event takes place. The nine days to include two weekends, so everyone can get an opportunity to take part. Information and Registration details may be found here: www.radio-amateur-events.org/IAW/index.htm



Railways on the Air - September

Railways on the air (ROTA) weekend usually takes place every year on the weekend

closest to the 27th September. This date celebrates the anniversary of the first steam powered passenger railway which took place on 27th September 1825 - the first passenger train ran on a line in the Northeast of England from Darlington to Stockton. The plan is to run it on 24th and 25th September 2022. This celebration is not a contest. We organise this so that radio amateurs have a good time and promote Amateur Radio while helping to celebrate the unique position railways hold in our national heritage. **Registration:** When you have the details of the Station, register on this website so we can keep everyone up to date with the latest news. Once the event is over and you have made more than 10 contacts, please email a copy of your log to the address on the Contact page and we will send a copy of a special event certificate. Register here:

<https://rota.barac.org.uk/register>



Amateur/RNSS Coexistence – 23cm Band



AMSAT-UK

IARU report on the recent meeting of ITU-R WP5A, the lead group responsible for developing the Conference Preparatory Meeting report about the WRC23 agenda item on the 23cm band.

The latest meeting of ITU-R WP5A concluded on June 2nd, 2022. The IARU was represented by Ole Garpsstad (LA2RR – ITU Lead) and Barry Lewis (G4SJH – WRC23 A19.1b Lead).

ITU-R WP5A is the study group at ITU which deals in part with topics related to the amateur and amateur satellite services. It is the lead group responsible for developing the Conference Preparatory Meeting (CPM) report on agenda item 9.1(b).

This Agenda Item provides for a “Review of the amateur service and the amateur-satellite service allocations in the frequency band 1240-1300 MHz to determine if additional measures are required to ensure protection of the radionavigation-satellite (space-to-Earth) service operating in the same band in accordance with Resolution 774 (WRC-19);” The CPM Report will form the basis for consideration of this issue at WRC-23 next year.

At the conclusion of the recent WP5A meeting a draft recommendation was prepared which will provide guidelines to administrations to ensure the protection of the RNSS primary allocation from the secondary amateur and amateur satellite services.

The draft recommendation will be the most important element of the WP5A work going forward for the amateur and amateur satellite services in the 23cm band. The working document contains a number of proposals for severe limitations on amateur usage of the band including transmitter power constraints. Very low power levels are proposed for large portions of the band (100% in one case). Proposals also identify possible frequency band usage limitations for broadband applications (e.g. ATV), narrowband applications and amateur satellite services in 1260-1270 MHz.

More information from

<https://www.iaru.org/wp-content/uploads/2022/06/23cm-Band-and-RNSS-June2022.pdf>

<https://www.iaru.org/wp-content/uploads/2022/06/23cm-Band-and-RNSS-June2022.pdf>

National HamFest / RSGB Convention 2022



As a result of the relaxation of COVID restrictions the RSGB will be holding a normal “in person” HamFest / Convention on the 7th – 9th of October in the Kents Hill Park Conference Centre, Milton Keynes, MK7 6BZ. Details about lectures and speakers will

be announced over the coming weeks. The programme includes five streams so there will be something for everyone. AMSAT UK will be joining them this year and will host one of the streams. There will be plenty of equipment to choose from at a huge rally in the venue.

Visit the WESCOM Radio Shop

<https://wescom.ie/>

Meteor Scatter

As the Earth moves along its orbital path, millions of particles known as meteoroids enter the Earth's atmosphere every day, a small fraction of which have properties useful for point-to-point communication.

When these meteoroids begin to burn up, they create a glowing trail of ionized particles (called a meteor) in the E-Layer of the atmosphere that can persist for up to several seconds. The ionization trails can be very dense and thus used to reflect radio waves. The frequencies that can be reflected by any particular ion trail are determined by the intensity of the ionization created by the meteor, often a function of the initial size of the particle, and are generally between 30 MHz and 70MHz. Obviously the 30 - 70MHz region will give the best results.

Meteor Scatter (MS) is the reflection of radio signals from the ionised trails from Meteors (Iron Rocks) burning up in the upper atmosphere. This effect can be used by radio amateurs to make contacts at distances of up to around 2,200km. Meteors burn up in the atmosphere at a height of between 90-105km. The ionised meteorite trail will reflect VHF radio signals, which would otherwise travel straight into Space. **Fig. 1**

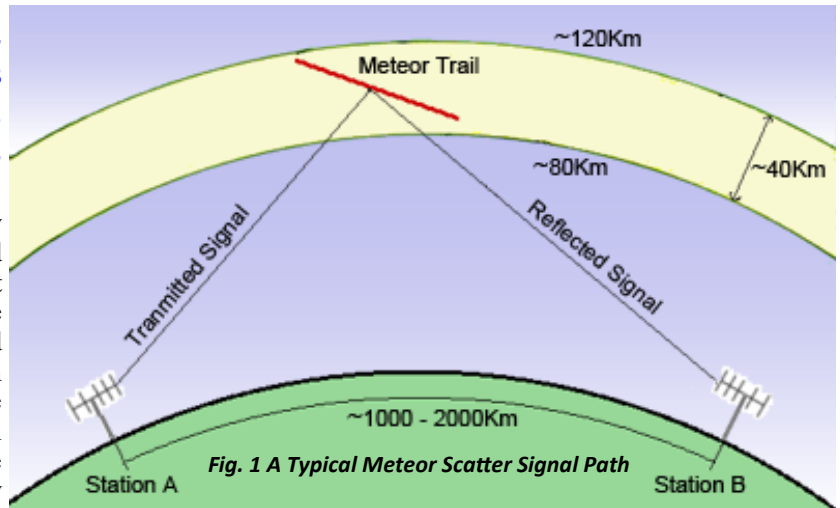
Each meteor, entering the ionosphere about 50 or 60 miles up, produces a thin cylinder of very intense ionization until it is burned out or dissipated. Oddly enough, only some 10 per cent of the total energy in a meteor is wasted in friction; the remaining 90 per cent is spent in producing ionization. Moreover, the speed of a meteor changes very little (perhaps 10 per cent) during its brief life, and its course is, for all practical purposes, a straight line.

The distance over which communications can be established is determined by the altitude at which the ionization is created, the location over the surface of the Earth where the meteoroid is falling, the angle of entry into the atmosphere, and the relative locations of the stations attempting to establish communications. Because these ionization trails only exist for fractions of a second to as long as a few seconds, they create only brief windows of opportunity for communication.

Outside of a major meteor shower serious 2 metre operators, monitoring the SSB calling frequency for long periods of time may notice the occasional pings from a random meteor trail which may sound like a station transmitting a single word or part of a word.

This effect has been exploited in remote areas where automated weather stations, set up in the wilderness of Alaska transmit packets of weather information via MS. It continues to do so until it receives an acknowledgement of message receipt. There are sufficient meteors entering the Earth's atmosphere to allow this.

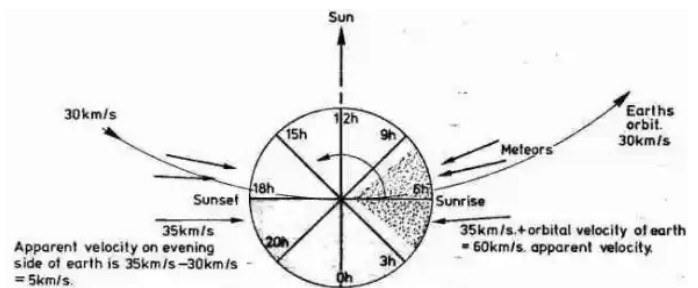
Meteors burn up in the atmosphere and leave an ionised trail of particles, which VHF radio signals can bounce off, for any time period from 100 milliseconds to over 2 minutes. The frequent time for reflections is often around 250 milliseconds or just a quarter of a second! Meteors may come at any time, but sometimes they come in showers, which can be predicted. During showers there are more meteors than usual and QSOs (contacts) are easier to make. Most 144 MHz operation is done during Meteor



Showers. A MS trail reflects 50MHz for longer time period than 144MHz, so it is easier to work MS on 50MHz. Actually, you do not need to wait for a MS shower at all to make QSOs, you can arrange skeds via the ON4KST 50/70/144/432 MHz online Chat.

Any form of communications mode can be used for meteor-scatter communications. Single Sideband audio transmission has been popular among amateur radio operators in North America attempting to establish contact with other stations during meteor showers without planning a schedule in advance with the other station. The use of Morse Code has been more popular in Europe, where amateur radio operators used modified tape recorders, and later computer programs to send messages at transmission speeds as high as 800 words per minute. Stations receiving these bursts of information record the signal and play it back at a slower speed to copy the content of the transmission. Since 2000, several digital modes implemented by computer programs have replaced voice and Morse code communications in popularity. The most popular mode for amateur radio operations is MSK144, which is implemented in the WSJT-X software. It is advisable to use a reasonably high gain directional antenna for MS to obtain the best results.

Meteor trails are unpredictable and "random", however there are times when the number of meteor trails increase, these are early morning, and during meteor showers, it is during these times that your chances of making a contact using MS as a propagation mode are at their highest. The increase in the meteor count during showers is obvious but the reason why early mornings also have an increase might not be so. **Fig. 2**



It's down to the fact that the point on the earth which has the sun rising, your location if it's early morning, is facing forward in the direction of travel of the earth through space and so collides with more debris, but this also means that

from noon till midnight the opposite is true, and it is the worst time of day for meteor reflections as your point on the planet has moved away from being at the front and is being somewhat shielded from space debris.

Meteors may arrive at any time but do arrive in showers at predictable times of the year see table in **Fig 3**. During showers there are more meteors than usual and contacts are easier to make. MS trails last for a longer time on 50 - 70MHz however when a shower is present this will facilitate operation on 2 metres. During a major Meteor shower it is possible to hold a voice contact if the shower is dense enough. Outside of a dense shower your contact partner may only pop out of the noise for less than a second with a 59+ signal - these can be lengthy contacts.

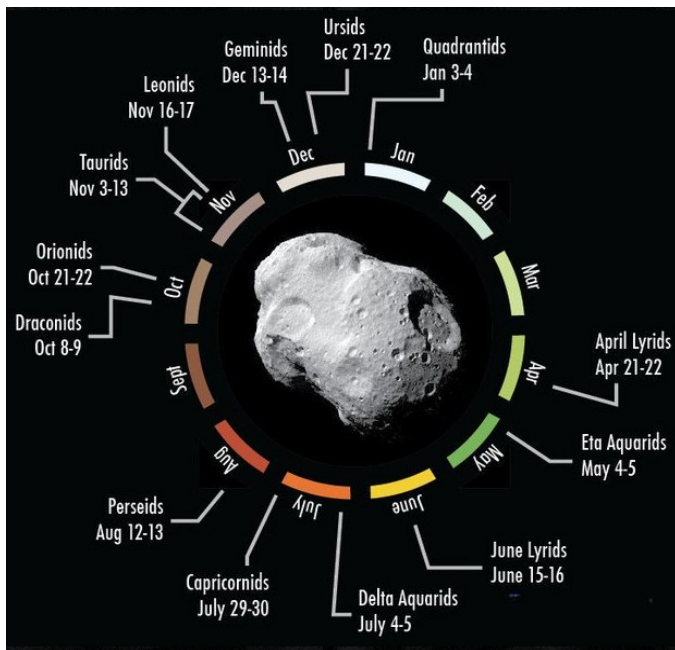


Fig. 3 Calendar Predicting Meteor Showers

It is possible to arrange a MS sked via the ON4KST 50/70/144/432 MHz online site.

To obtain the best results during the peak of meteor scatter operation it is best to adhere to the IARU Region-1 procedure found at this location: http://www.vhfdx.de/ms_howto.pdf

The Perseids Meteor Shower Coming Soon

At the time of writing, we are soon to experience one of the most prolific Meteor showers, the Perseids which reach their peak between the **12th and 13th of August**. It is always better to prepare for these a couple of days earlier to be on the safe side. During this meteor shower it is possible to see the meteor trails in the sky if one is situated well away for interference from city or town street lighting.

A point to note, if using digital modes of communication for meteor scatter; it is necessary to ensure that the computer clock is locked to an NTP server to synchronise the time. It is important that all stations adhere to this. Of course anyone that uses the WJT-X suite would know this!

Additional Resources:

https://www.qsl.net/g3wzt/g3wzt_ms.html

<https://rsgb.org/main/blog/news/rsgb-notice/2013/10/29/gw8jly-meteor-scatter-beginners/>

There are many videos present on YouTube that will add to this article and get you started.

PMR 446 Radio

PMR446 (Private Mobile Radio, 446 MHz) is a licence exempt service in the UHF Radio frequency band and is available for business and personal use in most countries throughout the European Union

PMR446 is typically used for small-site, same-building and line of sight outdoor activities. Equipment used ranges from consumer-grade to professional quality walkie talkies (similar to those used for FRS/GMRS in the United States and Canada). Depending on surrounding terrain range can vary from a few hundred metres (in a city) to a few kilometres (flat countryside) to many kilometres from high ground.

Historically, analogue FM is used but a digital voice mode has been available in radios conforming to digital private mobile (dPMR446) and digital private mobile (DMR Tier 1) standards designed by ETSI.



Originally 8 channels were available in analogue mode, but this has now been increased to 16 channels. Typically, PMR446 is used for both recreational and business use, additionally it has been utilized by amateur-radio operators and radio enthusiasts as a license-free experimental band.

The range of PMR446, just like any VHF or UHF radio, is dependent on many factors like environment (in-city range is far less than in an open field), height above surrounding obstructions, and, to a lesser extent, weather conditions. The antenna type and location, transmit power and receive sensitivity also affect range. However, with PMR446 most of these variables are fixed at manufacturing to comply with the PMR446 specifications. Most of the time the maximum range that a user in a city can expect is a few hundred metres or less.

We hope to obtain some input from PMR 446 user groups around Ireland as it is quite a popular system. There is a large following in the Burren Co Clare where a call will generally be answered on any channel.

The Galway VHF group have often employed PMR 446 systems to link up marshals on Hill Walks, Cross-Country Rambles and marathons. This has made it possible to link one section of a hill walk with other sections located in valleys and the other side of mountains via an Amateur Radio on HF. When used on the top of the hills in Connemara and Co. Mayo. The coverage is surprising. Our Walks in Castlebar were actually heard via PMR in the Cork area.

Some interesting effects were noted in Connemara where a ducting effect allowing communication literally over the top of a mountain to a user on the other side. The duct occurred as cloud formed over a ridge and appeared to be falling down the side of the mountain. At the same time, the Civil Defence Group were able to contact their colleagues on the other side of the mountain on their UHF radio systems as well.

If you are a member of any PMR 446 user group, we would like to hear from you. A small summary of activities would be more than welcome and we would include in our next magazine.

A 4:1 Balun for LPDA T6 thru to T12 Tennadyne Antennas

Wind the balun on a 4 inch or 10 cm former, the former can be 1.75 in or 5 cm wide-plastic pipe, etc.



Use good quality flexible - RG8U cable—of course, you can wind the balun into the full cable length if you wish, avoiding any connectors at the tower.

At a minimum make sure your cable extends more than the length of half the boom by at least 1 meter after the balun has been wound.

Wind 4 turns neatly onto the former -leaving a tail of about 7 or 8 inches - 20 cm temporarily use cable ties if



necessary—continue with another 4 turns on top of the first 4 turns - 8 turns in all see pic..

The tail of 7 - 8" is for antenna connection—connect the centre conductor to the upper boom & the outer to the lower boom at the front end of the antenna.

If you wish you can also use cable insulators to separate the RG8U a little below the lower element, although not strictly necessary. I never use insulators here—never any issue.



Use good strong cable ties every 6 " / 15 cm or so to strap the RG8U to the underside of the lower boom—weather and UV will eventually destroy the best cable tie.

Cable shrink - Denso tape – for waterproofing the cable - crimp connectors are less prone to breaking due to vibration.

Plug the inner ends of the elements if you do not want the antenna to “sing” in the wind

To test your antenna before installing - hang it vertically so the longest element is 10 feet over the ground - well clear of any near field obstacles and do a frequency run.

Michael Higgins EI0CL
aircooledtechnology@gmail.com

AllStar Link

AllStarLink is a network of Amateur Radio repeaters, remote base stations and hot spots accessible to each other via Voice over Internet Protocol. AllStarLink runs on a dedicated computer (including the Raspberry Pi) that you host at your home, radio site or computer centre. It is based on the open-source Asterisk PBX running our app_rpt application. App_rpt makes Asterisk a powerful system capable of controlling one or more radios. It provides linking of these radio "nodes" to other systems of similar construction anywhere in the world via VoIP. It is possible to run EchoLink in tandem on a AllStar Node



AllStar Link's primary use is as a dedicated computer node wired to a Repeater, Gateway or as small low powered personal node. Connections from EchoLink other clients and telephones are supported. AllStar systems can act as a full Repeater Controller with integrated Gateway to allow connection to other Nodes, Repeaters or Gateways via the internet. As can be seen from the world map, the Allstar system is quite prolific. Of course, we will always have the naysayers who think this is not real radio but it does allow connection to repeater systems all over the world and there are many bridges into it from Digital Radio Systems.

AllStar, which utilises the Asterisk programming system, was primarily an internet phone system which has been modified for amateur radio purposes. It allows VOIP Full Duplex Linking with superior audio. One can also employ the AllStar system as a half-duplex station or Gateway.

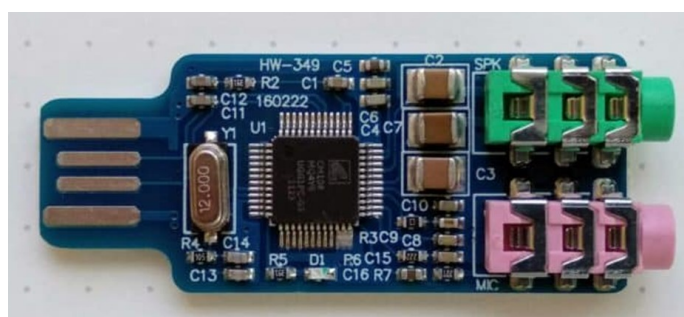
The many advantages of the AllStar system are highlighted as giving superior audio quality and more connectivity. Links are possible with any other AllStar Link or Echolink which can be run in tandem with the AllStar system on the same Raspberry Pi. It is possible to set the system to work via a Web Transceiver (Internet Radio). AllStar can be set up on Smart Phones or Tablets with the appropriate APP from a Webstore.

The components for an AllStar Gateway are a Raspberry Pi with Asterisk Software, A soundcard interface of CM108 USB fob, and an Ex-Commercial Transceiver such as a Motorola or Tait radio.

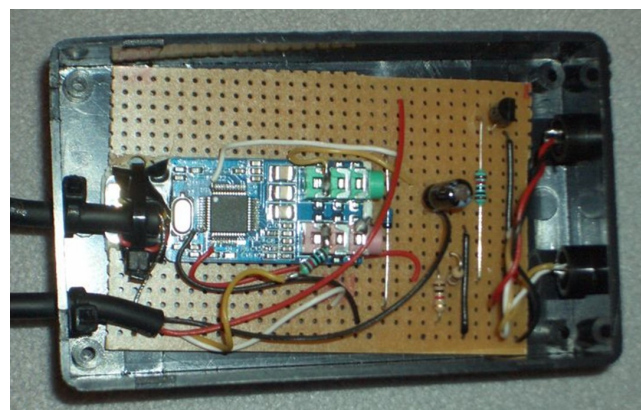
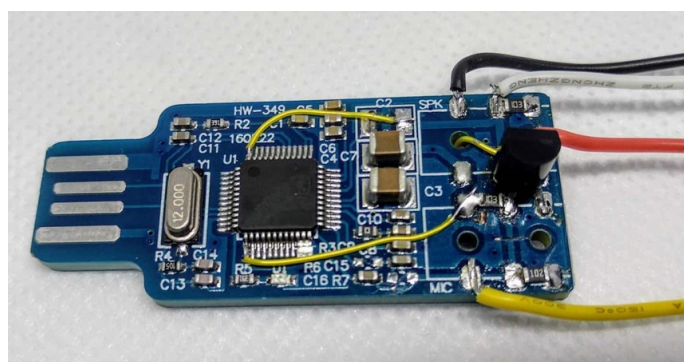
There are many commercially available Personal Nodes in kit form or fully built and operational and these are available from G7RPG or G5REV. These are generally just a Raspberry Pi, a CM108 fob, with a Modified Baofeng BF-888S handheld. The modification is really just down to the removal of the PA in the Transceiver and running low power from the driver stage with the sound card wired directly into the TX and RX audio stages. The Baofeng radio can then be programmed to operate on one Channel with CTCSS tones or DTCSS squelch.

Another popular system is the SHARI PiHat which is another kit or pre-built system which can be purchased to operate on 2 metres or 70cms. The PiHat is a board that sits on top of the Raspberry Pi 4. The TX/RX system is a miniature SA818 Module that is part of the PiHat PCB and runs milliwatts of power.

There are plenty of YouTube videos to guide one through



The CM108 Fob Above and modified beneath

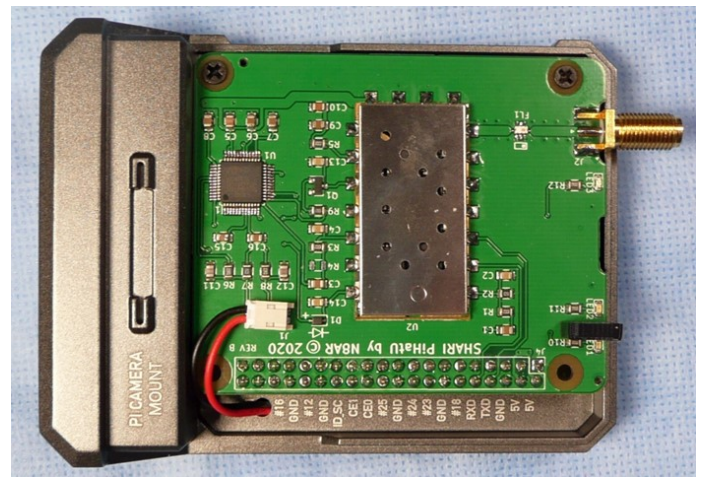


The M0AQC Modified CM108 Fob

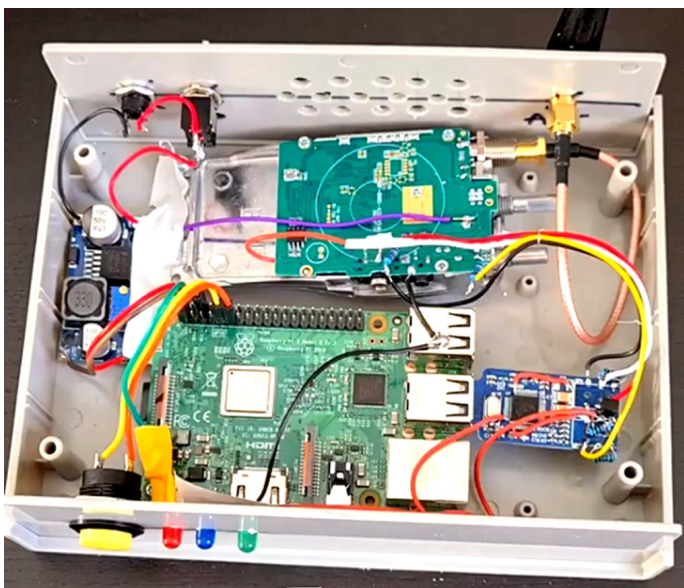
the programming and set up of the systems. It is time consuming to set up but it will never have to be done again. Once fully programmed and all is powered up it is possible to log into the system and control it from a Supermon Dashboard, a program linked into the Raspberry Pi.



The EI4GCG 4 Metre Gateway



The Shari PiHat Kit or Pre-Built



The G5REV Node—may be purchased built or in kit form

Your CALL - Supermon 6.2+ AllStar Manager

Logout:
Your LOCATION
RPI2-3 Node
Allstar/IRLP/Echolink System Manager

52469 1999 All Nodes IsNodes IRLP Status HAMVOIP

Permanent ☐

Connect Disconnect Monitor Local Monitor DTMF Lookup Rpt Stats Bubble Chart Control Favorites

Configuration Editor Jax/Rpt/DP RELOAD AST START AST STOP RESTART Server REBOOT SW Update?

AllStar How To's AllStar Wiki CPU Status AllStar Status Node Info Active Nodes All Nodes

GPIO Linux Log AST Log Connection Log Web Access Log Web Error Log Restrict

[EI4GCGGateway] [WAN IP: 46.7.130.84] [LAN IP: 192.168.0.49] [AstP: 4568] [MgrP: 5038] [SShP: 223]
[Monday, December 6, 2021 GMT 14:54:04] [2:45, 0 users, load average: 1.55, 1.59, 1.56]

Display Configuration [CPU: 91°F, 33.2°C @ 14:54] [Core dump: 1]

[Weather conditions for Your LOCATION 33904: 69°F, 20°C / Fog]

The Supermon Dashboard

Resources:

<https://allstar.org>

<https://hamvoip.org>

Idiot's guide to building an AllStar Node parts 1 - 6
YouTube

Galway Radio Club Journal Issue 3 2021

It is possible to initiate connections via the dashboard but. More importantly, it is possible to send commands via the DTMF Keypad of your handheld.

Via the dashboard, it is possible to view a bubble map of the current connection status. Bear in mind that if one connects into any node, It may be connected into a huge network of Repeaters and Gateway or Bridges to other modes.

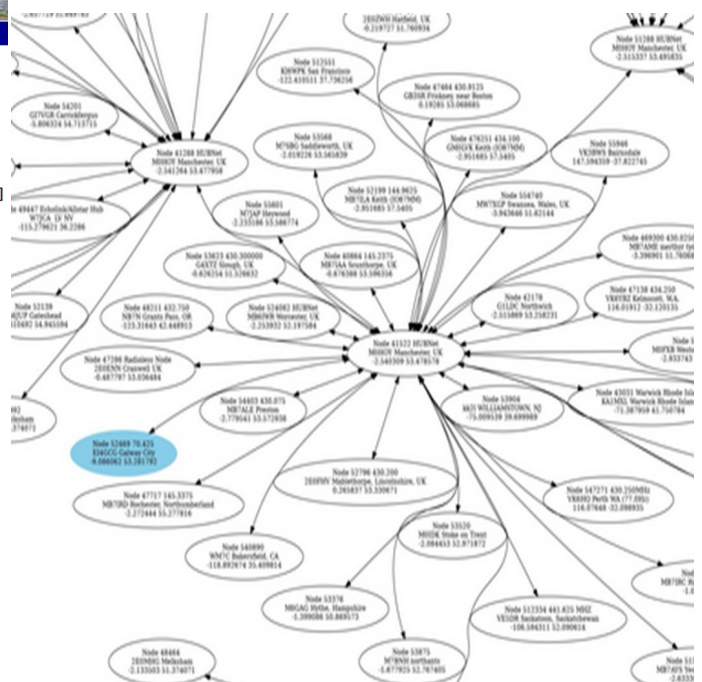
Allstar commands:

- *1 Disconnect from Link
- *2 Connect node in RX mode only
- *3 Connect Node in Transceiver mode

Optional Command codes:

- *80 Say System Time
- *81 Say System Time
- *980 Sa app_rpt Software version
- *75 Link Connect (Local Monitor only)
- *72 Last Active Node (System Wide)
- *73 System Wide Connection Status
- *71 Disconnect All Links (Macro)
- *74 Reconnect All Links (Macro)

Note: All Star Commands must begin with a "star" Character *



The Bubble Map showing connected Nodes

Citizen's Band Radio

Many people can cast their mind back to the early 1960's when it was possible to purchase a pair of CB "walkie talkies". The prices were generally in the range of 30 shillings. These were single channel sets with a regenerative receiver and no squelch. Basically, when the set was in receive there was a terrible wooshy sound unless it was receiving a signal. The antenna was a longish whip antenna which was very fragile and generally broke within a few days. The range was not fantastic as they only ran milliwatts of power and were not very sensitive. As kids, we would have all appreciated them as a gift. Names such as Lafayette, Binatone, and Ranger spring to mind.



A Pair of Sears Walkie Talkies always looked the part

These small walkie talkies were used at night when it was possible to hold a chat of two or three lads living in close proximity after "lights out" Radio held much more of a mystique back in the 60s where one was much more creative and imaginative. Very occasionally it was possible to hear a continental station when skip conditions permitted a strong signal to be received

No computer games or Play Stations in those days, just a big old Hector of a black and white TV and possibly the short-wave band on the domestic valve radio. In the UK we often picked up Shanwick on the short-wave radio.

Citizen Band Radio - What is it?

Citizen Band radio is a short distance radio communication system that operates within a selected range of forty channels. The majority of countries require no license to operate the radio service. A typical Citizen Band radio service is a two-way radio system that can be used for personal or business communication. Citizen Band radio is also shared among a number of users and is

characterised by one station transmission at a time. Other stations must, therefore, wait for a shared channel to be available. Citizen band radio originated in the United States. The year was 1945 and the service was regulated by the Federal Communications Commission. It is said that the bands were taken from Amateur Radio to form CB's first 22 channels from the 11 metres band. There was a twenty-third channel that was shared among radio controlled devices. The foundation of class A and Class B Citizen band radio was laid out in 1948. Class B was characterized by simpler technical requirements and formed the basis of today's public handheld radio devices.

The popularity of Citizen Band Radio

By 1977 Citizen band radio channels had increased from the twenty-three channels to forty channels. The expansion was associated with the service' wide popularity after the 1973 oil crisis. The Organisation of Petroleum Exporting Countries (OPEC) declared an embargo resulting to oil shortage, which therefore made the American Government impose a countrywide highway speed limit of 55 mph.

Truck drivers caught amidst the traffic regulations resorted to using Citizen band radio; through which they notified colleague drivers of speed traps and traffic barriers. The truckers would also use the service to locate fuel stations with favourable supplies of oil. The 1974 strike protesting the highway rules was organised through the CBs whereby the truckers would impose blockades and convoys to demonstrate. The popularity of Citizen band radio was also associated with the widespread use of the device on 1970s films such Smokey and Bandit and Convoy.

Around the latter mid to late 1970s there was a colossal following with CB clubs appearing in almost every town in Ireland. Galway had well over 800 members in its local "Breaker's Club". Some nights the 40 channels would be completely occupied way into the wee hours of the morning.

Occasionally there would be features on RTE's Nationwide campaigning to make CB radio legal. This featured many truck drivers, CB users and one notable gent "The Captain" in Dublin who seemed to be leading the charge. Even the Fianna Fail TD, Albert Reynolds was a regular user of CB.



A Cobra CB Radio

Initially, 40 Channel sets found their way in past customs from America. Cobra, Ham International, and Midland sets were popular. Many were brought into the country by relatives working in the States. For the Ham Radio Operators, the FT 902 had a hidden position on the switch which revealed a 27 MHz crystal enabling the use of 27 MHz. The Yaesu FT 707 was also very modifiable in its



The Ham International Jumbo Base Station

day by exchanging the 28 MHz band crystals. Other CB sets with multiple band positions allowed greater than 40 channels, SSB and FM operation. The President range of CBs were very popular in those days. The President McKinley was an excellent and very modifiable set.

One of the favourite CB mobile antennas was the DV-27 which was very easy to tune and, in fact, is a superb antenna to use on 10 metres. The Tornado Stinger was the other which was notable by the large coil and long whip section and, of course, not forgetting the K-40 antenna. Popular beam antennas included the PDL 2 and the PDL3.

CB clubs would often go out on Convoys over a weekend. In Galway the Kylemore Pass Hotel was a favourite venue where great festivities and quizzes took place between the Galway lads and the Connemara Club.

Worldwide DX-peditions are a regular feature of the hobby and very well supported. More recently there was one such DX-pedition to Arranmore Island, Co Donegal. Hilltop operating is a regular activity with some impressive distances achieved across country.

Whilst the interest declined over time, the Boy Racers and Car Rally enthusiasts were keen operators on CB. Other operators became very serious DX operators, and their stations would be the envy of many a well heeled radio ham. The antenna systems are even more impressive – a far cry from the auld DV-27 on a wheel rim!

Nowadays, the CB operators are not confined to just AM and SSB, in fact, many are using CW, Data modes, and some of the more complex Digital modes such as JT65 and FT8. The amount of DX stations worked by CB operators would put many of

us to shame. CB CW may be found at the area of 27MHz just below 28 MHz. Often radio amateurs would venture to operate these CB CW ops when there is little activity to be found on 28MHz. There is a comprehensive award scheme and some beautiful awards to be gathered for working the world on CB Radio.

Many CB operators would wince at the idea of becoming radio amateurs because they have everything they need on 27MHz and the world is their oyster. Others have gravitated towards amateur radio and sat the exam, although many were disenchanted by amateur radio and returned to CB. In point of fact, the majority of CB users have a good knowledge of radio theory after all many have some top of the range equipment with extremely good antenna systems and all very well maintained. As for propagation, you will generally find that 27 MHz operators are taking full advantage of band conditions well before activity on 10 metres becomes noticeable.

 EUROPEAN CITIZEN'S BAND FEDERATION (E.C.B.F) www.ecbf.eu			
PROJECT BAND PLAN FOR THE CB27MHz			
Channel	Frequency	Use	Comments
1	26965	MIXED	TEST CHANNEL
2	26975	VOICE	Mobil Home
3	26985		LOCAL / NATIONAL QSO
4	27005		MARITIME LEISURE
5	27015	CW	MORSE (LOW AM / FM AND SSB)
6	27025		
7	27035	VOICE	LOCAL / NATIONAL QSO
8	27055		
9	27065	EMERGENCY	LOCAL CALL - LISTEN - EMERGENCY PRIORITY
10	27075	VOICE	LOCAL / NATIONAL QSO
11	27085		
12	27105		
13	27115		NATIONAL QSO
14	27125		
15	27135		SPORTS - ADVENTURE
16	27155		4x4 - OFF-ROAD
17	27165		NATIONAL QSO
18	27175		LOCAL / NATIONAL QSO
19	27185		TRUCKS - TRANSPORTATION
20	27205		LOCAL / NATIONAL QSO
21	27215	VOICE DX	INTERNATIONAL QSO WIDE MODE (AM / FM)
22	27225		
23	27255		
24	27235		
25	27245	DX CALL VOICE	DX CALL CHANNEL (AM / FM / USB)
26	27265		
27	27275	VOICE DX	INTERNATIONAL QSO NARROW MODE (USB / LSB)
28	27285		
29	27295		
30	27305		
31	27315		
32	27325		
33	27335		
34	27245		
35	27355	DIGITAL MODES	MODES GENERATED BY MACHINES (DIGITAL)
36	27365		
37	27375	DX CALL VOICE	DX CALL CHANNEL (LSB)
38	27385		
39	27395	DIGITAL RADIO LINKS	RADIO-LINKS CONNECTED TO THE INTERNET
40	27405		RL1: 27,395 (39) -RL2: 27,405 (40)

DELBOY

A Portable Inflatable Antenna for 2m & 70cms

2 years ago, I purchased this inflatable antenna, developed by Tom Morris, GM3HNN, after watching an edition of TXFACTOR.

The antenna is a professionally made, robust waterproof, inflatable dual-band end-fed antenna for the 2m and 70cms bands. The Antenna is capable of handling powers up to 50 Watts. Weighing in at just 450gms, and just 5 ft long or 9x5x2 inches when packed, it was obvious that this would be a perfect system for use on hill walks or for outdoor operating.

When inflated the antenna is 5 ft long and fitted with 6m of low loss coax terminated with a PL-259 plug. At the top of the antenna is a small flap allowing the antenna to be slipped over the top of a fibreglass or wooden pole. Near the base, are two Velcro straps to fasten the antenna to the pole. There are also a couple of eyelets which allow a piece of string to loop through to suspend it from a convenient branch or gutter.

The antenna can be inflated with a CO2 cylinder as used on lifejackets or, alternatively, it can be manually inflated with a couple of puffs of air through the valve assembly located near the bottom of the antenna. To deflate the antenna, inset a finger into the tube of the valve assembly to release the air. This may have to be done a few time in the process of folding the antenna to be replaced into the pouch.



rubber duck antenna on top of the handheld. The received signal was Strength 8. Stepping back the power levels on the handheld resulted in no access into the Repeater.

Substituting the air antenna for the rubber duck antenna

resulted in access to the Galway Repeater right the was down to the 0.3W setting. The received signal was a full-scale meter reading.

A Trip to Tonabrocky, the local high spot, facilitated a contact over 60km with Joe, EI3IX. Using the Rubber Duck antenna and 2.5 watts, the signal was received in Castlebar at a noisy Strength zero. With the Air antenna attached the signal was received at a good readable strength 5 to Strength 6. Not bad for a point-to-point path of 60 Km. Subsequent test bore out these results.



In conclusion, this antenna is a versatile antenna and performs as a half wave antenna should on 2 metres. On 70cms this antenna has a gain of 5dBd. It is light and easy to carry, has no loose parts, nuts or bolts, that could get lost on a hillside. It is small, light and easy to carry and perfect for hill topping.

Whilst searching for the original supplier, the antenna appears to be marketed by Coax Solutions LTD, with the name of Shakespeare Galaxy INFL8-ham and retails for just short of £100.00. This company also markets inflatable Airband and marine antennas

<https://www.coaxsolutions.com/galaxy-infl8--ham/>

Steve Wright - EI5DD

Beverage for 80m with 160m & 40m Advantage As Well

Due to the EU noise level & QRM at times during last winters DX season on 80 metres, it came to mind that a more specific antenna for receiving from the West might be a good idea to have at one's fingertips so to speak.

So, a 1000-foot length of 2 mm hard drawn transformer wire was rolled out. This is heavy stuff over such a length and would need several supports. Some obliging trees were used to fix on some old P & T large white insulators, these already have a suitable bolt for fixing to timber cross trees on telegraph poles they are cheap and plentiful as well and look nice to me in any case.

The direction chosen was that same heading as the 5-element wire beam for 80 and soon for 40 metres as well (next project) that is 280 degrees true heading.

At the East end there is an obliging timber building and here another insulator was installed - the copper wire



to the earthy side of the transformer. RG8U takes the signal to the radio room.



The west end is brought to earth via a resistor stack – again in a fully waterproof enclosure see above. Here, the earth system is a pair of earth rods 10 feet apart driven into the bed of an old drain.

The initial results are good –the F/B is excellent, and it looks like it will eliminate anything coming in from the east by a very considerable level of attenuation. It is very quiet & also attenuates wanted signals when compared to the Yagi but its much quieter altogether almost no noise-so very weak

Signals can be clearly heard - On 40 metres it seems to perform even better than on 80 but lots more use needed to see how it does under adverse conditions.

Currently the receiver is being manually switched to this antenna during DX testing - the next step is to connect it to the KIWI SDR - then it can be monitored all the time on the PC. However, before this can be a success - a remote antenna switch is needed so that the SDR can be switched to a dummy load (or an attenuated signal source) so as not to damage it during transmission. The plan is to make this KIWI available also for internet access once the job is complete.

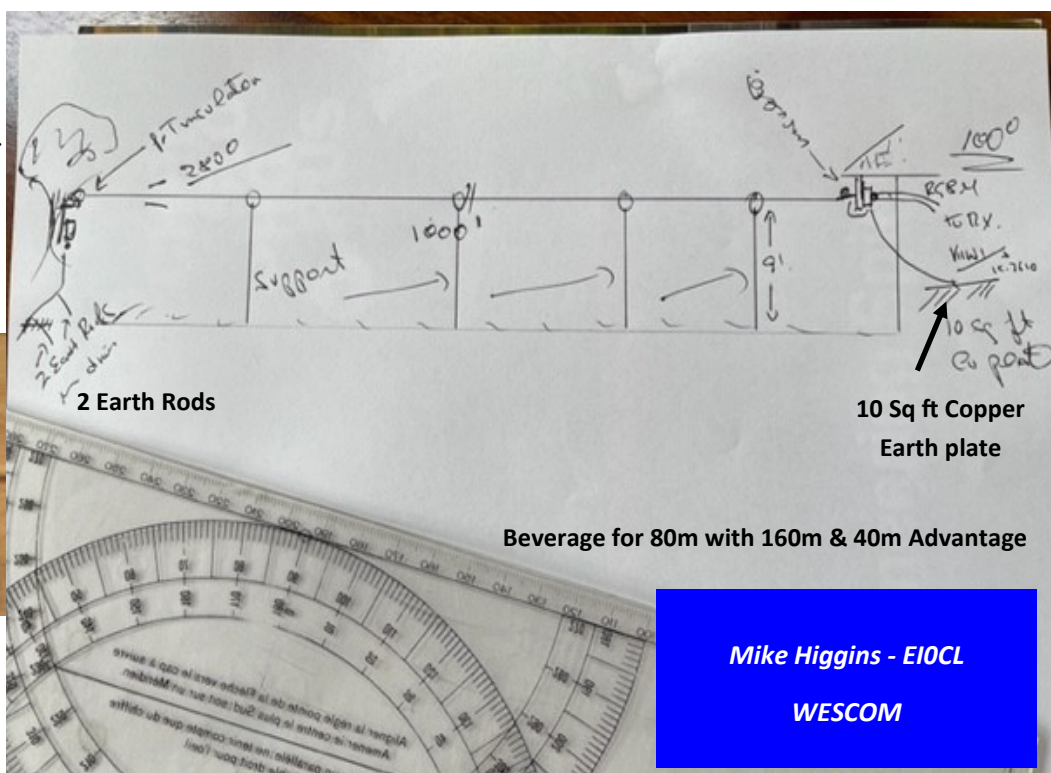


pulled over the full support line-up to get to into a straight line vertically and horizontally. It is 9 feet over the ground. In between there are 4 further supports with their top sections fully insulated all in line of course.

At the east end the transformer is installed in a waterproof housing – we sell these transformers.



They can be seen on the WESCOM website. An earth plate (copper) was installed –its 10 sq ft and a copper. the earth cable run



Beverage for 80m with 160m & 40m Advantage

Mike Higgins - EI0CL

WESCOM

The E-Layer

The E-region lies from 90 to 140 km of altitude approximately. It is produced mainly by daytime ionization of molecular oxygen (O_2) by solar extreme ultraviolet (EUV) solar radiation (90–103 nm). Electrons recombine with molecular ions (O_2^+ and NO^+). The electron density of the E-region peaks around noon hours and at the geographic equator. It diminishes during night, however, due to the slower recombination in comparison with the D-region, it does not disappear. Electrons recombine with atomic ions (such as Na^+ or O^+) very inefficiently. Sporadic layers of patchy nature called sporadic-E or Es layers appear at E-layer altitudes. These are thin layers with electron and ion densities well above the background E-region electron densities that last from minutes to several hours. Their presence can have different origin and can affect ground-to-ground propagation of radio waves up to 200 MHz depending on their electron density. The influence of the E-region ionization is very minor in the propagation of GNSS signals due to the small contribution of the E-region to the total electron content (TEC).

The differences between day and night on the various layers is that, the D-Layer dissipates completely, the E-Layer weakens, and the F1 and F2 Layers combine. As the solar radiation is more intense in the summer months, the F1 and F2 layers form at higher altitudes than during the winter months due to the tilt of the Earth **Fig 1**

On a daily average, the E-Layer forms around sunrise and fades at sunset but does not completely disappear. During daytime hours, in theory, the E-Layer could refract medium frequency signals and refract them downwards. However, the D-Layer, situated below the E-Layer, absorbs much of the energy of signals at these frequencies during daylight. Only signals that exceed the critical frequency transmitted near vertically - will be able to punch through the D-layer with enough remaining energy to reach the E-layer and then be refracted back down to reach distances as far as 1200 km (750 miles) at times. **Fig.2**

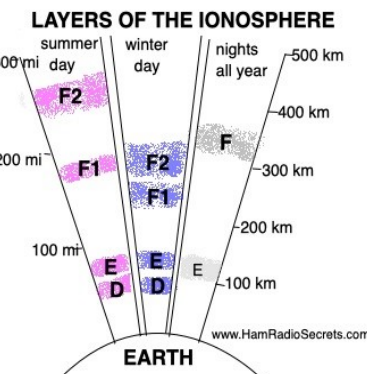


Fig 1 Day and night layer height variations

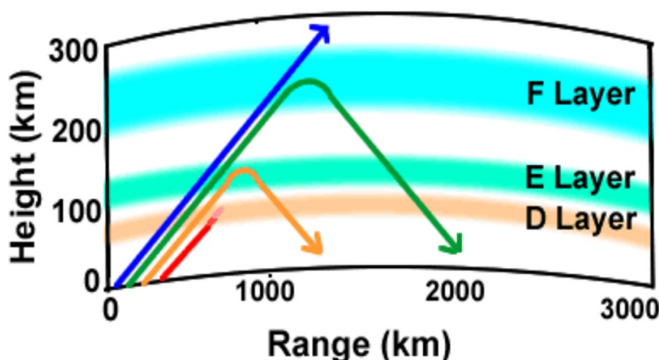


Fig. 2 Propagation of signals through the ionosphere.
As the Critical Frequency is exceeded they pass through the layer

The periods *just before dawn* and *right after dusk* are best to make use of the 'E' layer. At night, the 'E' layer disappears almost completely, while still remaining somewhat useful to the propagation of signals in the 160 meter band. **Fig.3**

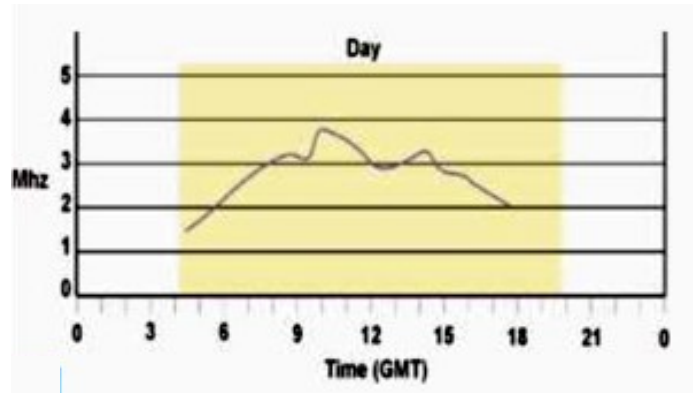


Fig. 3 Critical frequency of E-Layer throughout a Summer Day

Sometimes, dense ionized clouds will form suddenly in the 'E' layer and disappear just as suddenly, minutes, rarely hours later. This is Sporadic E (Es). It is speculated that this is formed because of windshear. Sporadic E can appear and disappear very quickly or may continue for hours. Propagation tends to be patchy as can be illustrated by a nearby station working a phenomenal distance and you hear nothing. Sporadic E propagation spreads higher in frequency as the level of Ionisation increases. 50 MHz is the first VHF Amateur band to be enhanced and as the density of the ionisation increases 70 MHz will become the next band and possibly 144 MHz if conditions are really good.

Sporadic 'E' propagation (Es) is useful at frequencies above 28 MHz, in the VHF range, rarely below. We cover their usefulness in extending the reach of VHF signals beyond the horizon on another page of this website. This can occur at any time but more regularly in the month between April and August.

The map in **Fig. 4** illustrates the areas of Es density. Dark Green 14 - 30 MHz, light Green from 30 MHz - 50 MHz, and Yellow from 50 - 80 MHz, Orange from 80 - 130 MHz, and Red 130 - 150 MHz

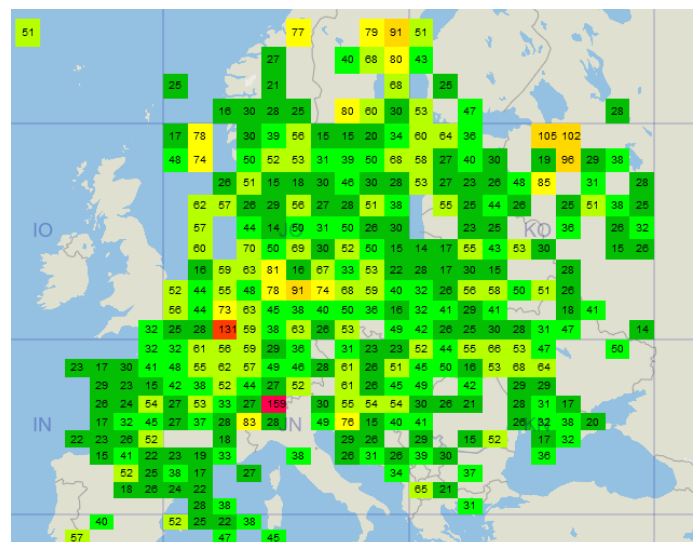


Fig 4 Map showing Density of Sporadic E

The map in **Fig. 5** shows the paths of propagation on 50 MHz and was derived from real time logs submitted to “DX-Maps”. The paths coincide with the propagation density illustrated in **Fig. 4**

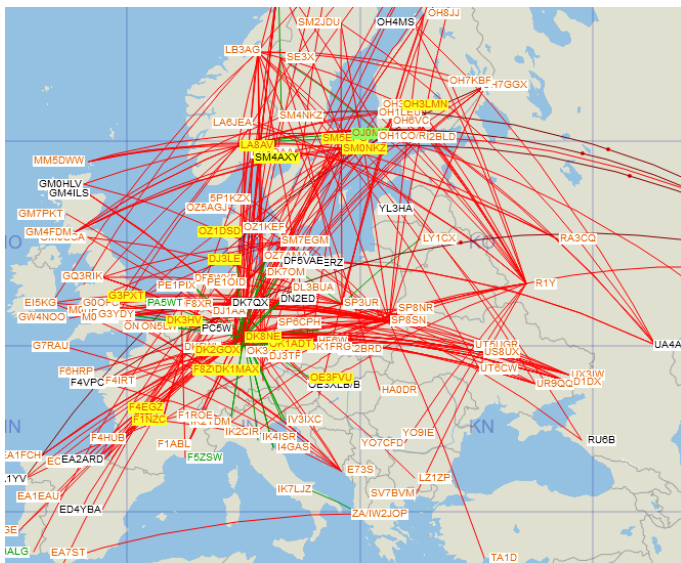


Fig. 5 Paths of Propagation during a Sporadic E opening on 50 MHz

Fig. 4 also showed a dense area capable of propagating 144MHz and the Map in **Fig. 6** bears this out with a lesser number of 144MHz contacts occurring at the same time as the major opening on 50 MHz

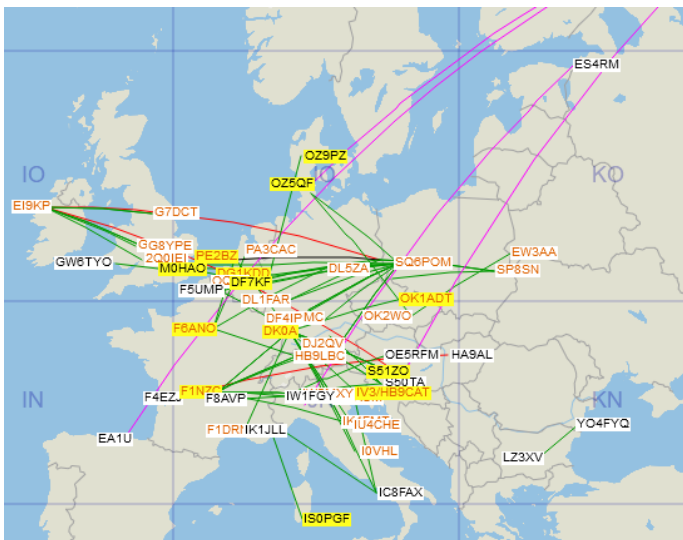


Fig. 6 Map illustrating Paths of Propagation during a Sporadic E opening on 144MHz

It was also noted that Sporadic E was influential around 14 - 30 MHz. CB operators would derive plenty of benefit from the effects of Sporadic E as well as operators on 10 metres.

The maximum distance workable on Es contacts is approximately 2,000 Km, which is governed by the height of the E-Layer above ground and the curvature of the Earth.

Propagation can additionally be enhanced by a signal being reflected back to ground and back up in a double hop into another densely ionised patch in the E-Layer. **Fig. 7**

Another Es phenomena occurs when a signal bounced off one area of ionisation in such a way that it is propagates towards another densely ionised area before being reflected back to ground which may enhance the distance of a signal

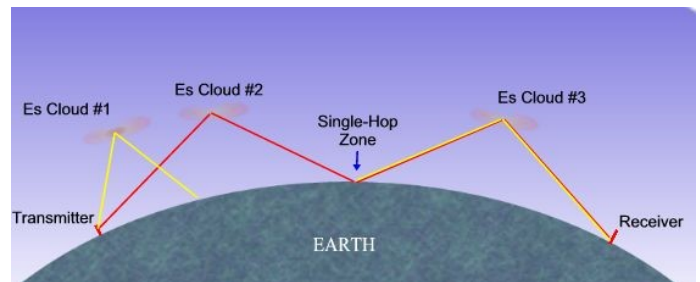


Fig. 7 Signal reflected back to ground and back up into another densely ionised patch.

even further.

Occasionally the E-Layer becomes so dense that no HF signals pass through are at least barely pass through. The net result is that the propagation of 14 Mhz signals will only be short distances as the signal is bouncing off a lower layer of ionisation by comparison to the normal propagation via the F1 and F2 Layers.

Sporadic E ionisation is not wholly confined to the summer month but regularly occurs in the months of November and December. In fact, there are generally a few strong occurrences in December where the 144 MHz band produces some excellent results.

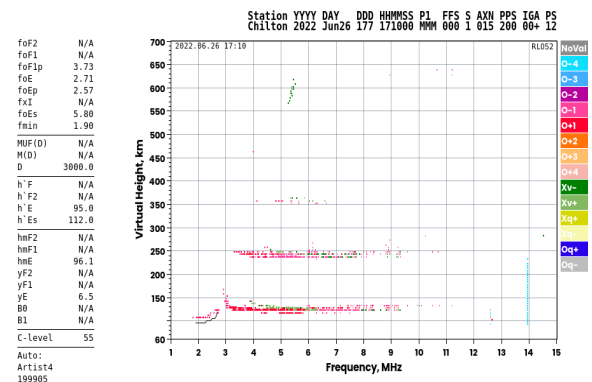
It has been shown the Winter Sporadic E may result from tropospheric conditions forming wind shears at weather fronts which give rise to strong jet streams.

This puts into question that strong radiation from the Sun is entirely responsible for Sporadic E and does it perhaps depend to a second factor such a jet stream locations or a combination of both.

As we, in Ireland, have the use of the spectrum between 30 - 70 MHz, it will be possible to track the progress of Sporadic E propagation from 30 MHz through 70 MHz and up to 144MHz. More countries are coming on line with an allocation for, at least, a beacon spot on 40 and 60 MHz.

During this Sporadic E season we have regular reports from other countries who have a 40 MHz allocation and received signal reports from those who do not.

Listen for enhanced signals on the VHF broadcast bands, as this is a pretty good indicator that 144Mhz maybe is or shortly due to open for some good propagation.



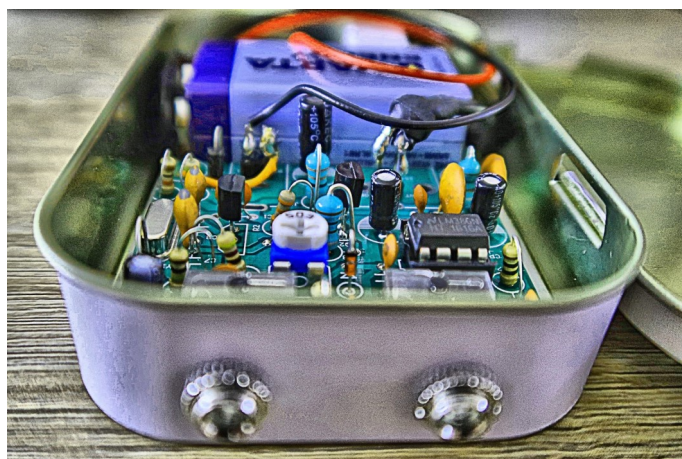
An Ionogram displaying the above trace, is a good indicator that the E-Layer, depicted here at approximately 96Km above the Earth's surface, is actually dense enough to prevent HF signals from passing through. Conditions on 14 MHz would be pretty poor with short hops and anything from 12 Metres upward would be active. The second layer is actually a virtual trace resulting from the Ionogram picking up a second hop from the Layer at 96Km effectively doubling the time of flight. There were openings on 6, 4, and 2 metres at the time.

The GI-QRP Conference



The GI-QRP Conference was held in Tandragee Golf Club on Saturday 25th June from 09:30am until 6pm. It was the first conference in Northern Ireland for the G-QRP Club. Being a member, I was excited to attend and wasn't really sure what to expect. There were a few stands, Worked All Britain, the now famous QRPer EI5EM, G-QRP Club Sales, and the British Young Ladies Amateur Radio Association (BYLARA). The event was streamed live on Zoom.

Proceedings started at 10am with an introduction from Philip, MI0MSO and Steve, G0FUW. We then had our first presentation from Dick, G0BPS on the history of the QRP from winter 1949 until now. The Rev George Dobbs wrote the first of many SPRAT newsletters using a Spirit Duplicator. We learnt that SPRAT means "Small Powered



The Pixie QRP CW transceiver

interesting kits that he had made and with the right circuits you could have a radio every bit as good as a "Wadio" (A wadio is a modern radio that costs a 'Wad' of money). He demonstrated CW reception with his homemade QRP radio and there was at least half a dozen stations being received at the same time, something which is very difficult to decode. He then inserted an audio filter which cut that down to just one signal which was very easy to decode. I had a chat with Les at the "build-a-thon" after the lectures and he showed me some of his work, including a Limerick Sudden transmitter, receiver, filter, power supply and the now famous Molar morse key (A morse key made out of a toothbrush.)



Steve G0FUW Chairman of the G-QRP Club

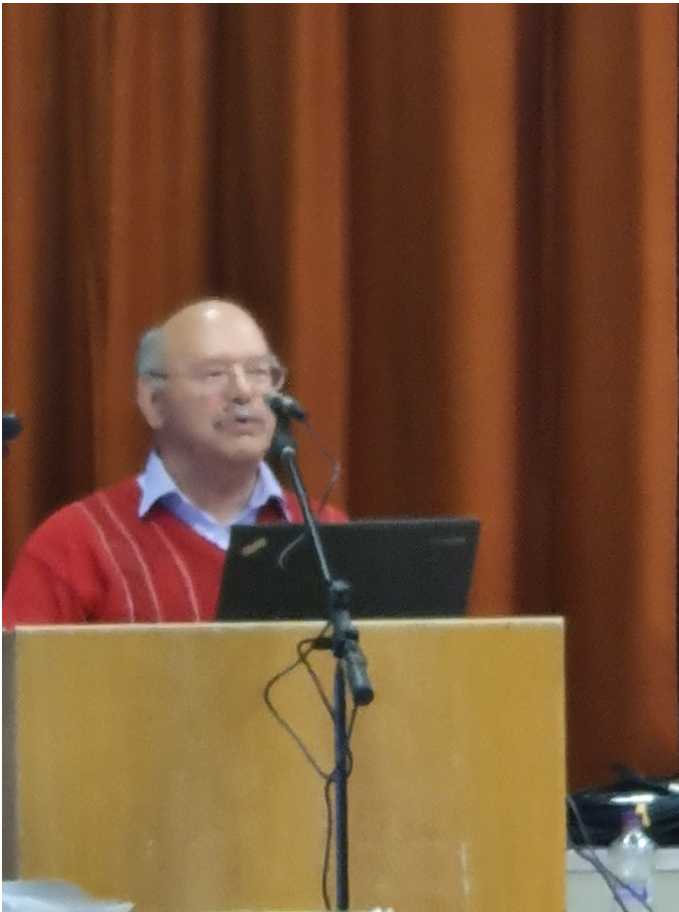
Radio Amateur Transmission"

After the lecture on the history of the G-QRP club Michael, MI5MTC gave a great lecture on the writings of the Rev George Dobbs, G3RJV. Michael also showed off some of the kits that were either built by or designed by George. The Rev George Dobbs must have designed hundreds of circuits that were published in SPRAT over the years and his designs were simple but powerful! He was the editor of SPRAT for many years and only gave up due to ill health.

We were then treated to a lecture on low cost transmitters and receivers by Les, G11BZT. He showed us how to build a transmitter for as low as £3, the now famous Pixie transmitter. We were informed that it doesn't cost the world to start building transmitters. The Pixie kit can be found on famous internet auction sites and can fit inside the now famous Altoids mint tins. Many QRPer's have a mint addiction HI HI! Les showed us some very



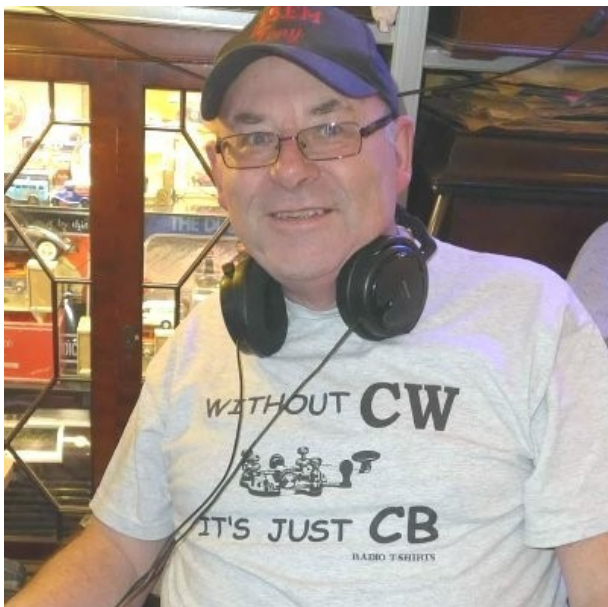
Michael MI5MTC lecturing on Rev. George Dobbs articles and kits



Lez GI1BZT lecturing on low cost transmitters and the Pixie Kit

Then we broke up for lunch and I had some very tasty chips, rice and chicken curry with some garlic bread. It was very tasty, and I made a new friend who ate with me, and we had a great chat about QRP and how we were both enjoying the convention very much. A cup of coffee was then bought, and we sat down for the next lecture.

Next up was Tony, EI5EM. His lecture was on home brewing QRP equipment. Tony is well known, and he showed off his many kits he brought along his infamous QRP Rig In A Box. The only piece of kit he didn't build



Tony EI5EM lectured on home-brew QRP equipment

was the transceiver, but he has one to be fitted to it built and just waiting to be installed. He explained his process of building kits from designing them to etching his own circuit boards. Tony showed us some of his work from receivers to transmitters to ATU's and other bits of equipment. He showed an ATU that used a LED that powered on when the SWR was too high. When he tuned the antenna, the LED light would go out when the match was correct. Ingenious to say the least. Tony is very well known in QRP circles and of course home brew circles. He has ignited a spark in me to build more home brew kits and



Albert EI6KO discussing SOTA Operation

QRP operating as well.

After Tony we had an excellent talk on SOTA from Albert, EI6KO. Albert explained what SOTA was all about, and the steps needed to activate a summit. He explained how he prepared for SOTA and how he chose his equipment. He admitted taking a 100W rig up a mountain including batteries and how it wasn't worth it. When you are up that great of a height you are going to get a good signal out, even with 5 or 10 watts. So just to get that extra S point or 2 doesn't justify the extra weight to be carried. We learnt that you could activate the summit from as much as 25 metres from the top. He also explained how to install a dipole using a fishing road type pole. SOTA is very popular in Ireland with activations nearly if not every weekend with awards for both chasers and activators. Whilst I'm not an active chaser, if I did hear an activator, I would give them a QSO as they need four to make points for activating a summit.

Next up we had Nathan, MIØNPR. Nathan is a Raspberry Pi expert. He told us the Raspberry Pi was born in 2012 with the model A. Move on 10 years and we now have the Raspberry Pi 4 with up to 8GB RAM and twin micro-HDMI 4K ports. The raspberry Pi is powerful enough to be the main shack PC and at about €40, cheap enough. The Raspberry Pi was designed for students in mind, with it's open source and free software and cheap price it well deserves a place in the radio shack. All sorts of radio software can run on the Raspberry Pi from logging software to satellite prediction software and everything in between. In my own house, I have 8 Raspberry Pi's running everything from a DNS server to a Repeater controller, hotspot controller and 3D printer controllers. Nathan explains how it can be used for almost everything, he even told us about a 'Parent Detector' he had built. Coding for the Pi is easy with a wealth of knowledge on the internet. You can be sure if you think of a project for



Rev George Dobbs, G3RJV SK, founder of the G - QRP Club, remembered

the Raspberry Pi, someone else has already done it.

So, after all the talks the conference was nearly over. During the talks, younger people made a morse tutor come oscillator in a “build-a-thon” and after the talks it was the turn of the adults. It was a really easy project with only 6 resistors, a capacitor, a transistor, a led, a microchip, 2 sockets and 3 pots.



Build - A - Thon Morse Tutor Kit

I was happy that it worked first time and it is an excellent circuit for an absolute beginner. By the way, I won a raffle prize of a Sudden 40M receiver and that is now my next project. It was sponsored by Kanga Products, and they sell a wide range of kits.

The kits for the junior build-a-thon were funded/sponsored by the Radio Communications Foundation (RCF)

GI5LOW was available to G-QRP members to activate from 19th June to the 26th of June. I activated it on Friday 24th June for two hours and had great fun. It wasn't the normal rubber stamp 599 thank you and next but each QSO was a rag chew. I didn't make many contacts, about 13 in total, but I had great chats with operators from all over Europe and Asia. All with only 5 watts. When I got home,



Junior Op first attempt at building a circuit and had never used a soldering iron before

I decided to let the linear sleep for a while as the QRP bug has bitten me. After I build the receiver, I am going to build the matching transmitter and get on the air QRP, after all it states in your licensing conditions that you only use enough power to make the contact and 5 watts is enough.

It was a great day and we all enjoyed it. It was well organised and went ahead without any hiccups. I hope the event returns next year as it was a great success. Special thanks to the Mid Ulster ARC and Philip Hosey, M10MSO, for organising the GI-QRP Convention.

Micheal Na bPiob - M10HOZ

Hillwalking Radio Club and The Galtee Challenge

The Hillwalking Radio Club were on duty for the Galtee Challenge on Saturday 25th of June. A huge thank you to everyone who took part and to all those who came over to talk to us and admired our set up. It was the first time we used our support unit which made life so easy for all the Team.

No more climbing up the side of buildings trying to get coax through windows, looking for a safe place to set up an antenna or sorting extension leads and power sockets. It was just a matter of parking up the trailer, sitting in and press the power button and relax knowing that a 100amp leisure battery would provide ample power for radios and internal lights and charging phones. The self-navigating Galtee

Challenge is a 31km traverse of the entire Galtee Mountain range, taking in all major peaks with a total height gain of 1700 metres and a maximum altitude of 919 metres from Cahir in Co. Tipperary to Anglesboro in Co. Limerick.

While everything ran smoothly for the first three hours conditions deteriorated rapidly with driving rain and a sudden sweeping wind coming from the Southwest. Many of the hikers were caught off guard and were knocked over. Robust communications were maintained on the North side using 163mhz between sweepers and a 4X4 team.

Point to point back to the community hall in Anglesboro worked extremely well on 70mhz. On the South side we were supported by the Muddy Wheels 4X4 lads using 27mhz. The frequency had the greatest knack of curling around the valleys and proved very reliable. 446mhz license free radio was used between support unit and event organisers in the community hall at Anglesboro. As the

evening progressed sweepers struggled to get back in driving rain and radio was only used for emergency communications as a last resort. We had to recover several hikers who lost the willpower to continue as a result of hyperthermia.

Overall, it was a success for Hillwalking Radio Club having two first responders and a paramedic participating in the event



Facebook:

<https://www.facebook.com/Hillwalking-Radio-Club-1184379331613337>

Website:

<https://www.sites.google.com/view/hwrg>

Galway VHF Group Assists The Galway Regatta

The Galway Regatta is an annual event held on the river Corrib, normally in the month of June. The Covid pandemic has prevented this event from running in the previous two years however, this year saw many schools' rowing clubs from around the country although none from Northern Ireland this year. The Galway VHF Group assist with the event and their role was coordinating crews on and off the river, keeping a steady flow of crews to the start line and passing information from the Regatta Secretary to the start line, marshals and slips stewards. The slip area is particularly dangerous as crews are continuously taking to the water and other crews trying to bring their boats back in after the their race has finished. Always plenty of action in this area with a high risk of collisions.

There were many different crews taking part in the form of Scullers, Doubles, Quads and Eights so the river was extremely busy all day. Occasionally the Corrib Princess, a tourist boat would come up through the course, so the event was paused until it passed. Fortunately, this boat has a narrow draft and does not produce a wake that would



Fig 1: Eights event heading away from the start line



so forceful that the rower is ejected from the boat - a none too pleasant experience.

The communications were established on 70cms and given the length of the course, it was possible to use handhelds at the start line and slips with a base station in operation at the Control Centre. The antenna used at the Control Centre was an Air Antennas inflatable antenna which worked extremely well and will be used next year. The event commenced at 8am and ran throughout the day



capsize a boat.

Tom Rea, EI2GP, was located at the Start line, Paul, EI5IPB on the slips, and Steve EI5DD at the finish-line with the Regatta Secretary. For the duration of the event there were constant updates about crews heading towards the Start line, crews required to get onto the water for the forthcoming events, crews taking part in finals and then the aspect of water safety as these boats are very light and it does not take much for a boat to capsize in rough water, or if a breeze blows up. Occasionally there is a clash of oars if a boat should get too close to another crew. Another unpleasant occurrence can be the "catching of a crab". "Catching a crab" in rowing terms is an expression used when a blade or oar gets stuck in the water. A crab may be minor, allowing the rower to quickly recover, or it may be





Fig 2: The Regatta Control station



Fig 3: Our local Press Photographer

until 8 pm there was an hour break for lunch at 1pm. The weather was excellent for the whole day although there was breeze blowing across the course.

The crews were punctual at the start line and there were very few delays, so the Regatta held time throughout the day and much of this was down to the coordination with the slip marshals. On a couple of occasions crews became stuck in the reeds near the riverbank due to the breeze blowing them off course. As this occurred close to the start line it was possible to restart the event and give them a second chance.

There were a couple of capsizes during the event but these were quickly attended to although very little trauma

resulted, mainly due to the presence of safety crews and the umpires being close at hand.

Sadly, the traditional “Death Burger” truck was not present this year and we had to eat healthy food! Better luck next year!

After the completion of the final for each event the crews were called to receive their trophies and have their photograph taken



The whole day ran like clockwork and rapid fire communication kept everything to the program. Special thanks to Tom Rea, EI2GP, Paul, EI5IPB – this was his

Shannon Basin Radio Club

IRTS CW Field Day 2022

On Saturday June 4th and in glorious sunshine, Shannon Basin Radio Club operated as EI3Z/P as part of the 2022 IRTS CW field day. The club set up the station in a field just outside Roscommon town using an inverted V antenna. Operators Brian EI8IU and Mark EI6JK worked over 100 stations in 22 countries within a few hours across the 80m to 15m bands. Having recently been announced as the 2021 20m CW World-Wide DX Contest winner, Mark EI6JK ensured the key was put to good use. The longest distance achieved on the day was just over 7,000km. The club members and visitors made short work of a pile-up of the food kind

courtesy of Anthony EI6GGB and BBQ expert, Tom EI4HCB. Many thanks to Tom EI4HCB also for allowing the club to set up camp in his field on the day.



Figure 1: from left to right – Melissa (SWL), Anthony EI6GGB, Brian EI8IU, Owen EI4GGB, Gordon (SWL), Fergus EI6IB, Patricia (SWL), Roger EI6IFB, Pat EI9HX, Patsy EI9CUB, Keith EI5IN & Conor (harmonic), Tom EI4HCB, and Paul EI9HQB. Missing from photo: John (SWL)



Figure 2: The club's antenna used for the CW field day



Figure 4: Mark EI6JK (2021 20m CW World-Wide DX Contest winner) and Brian EI8IU on the key during the CW field day



Figure 3: Chef Tom EI4HCB hard at work



Figure 5: The field day station operated by Shannon Basin Radio Club in sunny Roscommon



Figure 6: All aboard for Shannon Basin Radio Club - from left to right: Anthony EI6GGB, Tom EI4HCB, Roger EI6IFB, Peter (Cavan and Leitrim Railway), Brian EI8IU, and Fergus EI6IB

Museums On The Air Weekend

The good weather followed the club to Dromod, Co. Leitrim for the Museums On The Air weekend. On June 19th, the club operated as EI2SBC/p from the Cavan and Leitrim Railway. Conditions on the day were challenging on HF but a lot of fun was had. Established in the early nineties, the museum is entirely volunteer-led and funded by donations. Visitors are certain to be surprised by what they have acquired over the years with exhibits ranging from an operational steam railway and collection, airplanes, vintage buses, and even artillery. Shannon Basin Radio Club wishes to thank the staff, namely Michael, Philip, Peter, and Nigel for their wonderful welcome and enthusiasm for the event. This hidden gem of a museum is well worth a visit - further details are available at www.cavanandleitrimrailway.com



Figure 7: Anthony EI6GGB operating EI2SBC/p at the Railway Museum



Figure 8: From left to right: Michael (Cavan and Leitrim Railway), Fergus EI6IB, Philip (Cavan and Leitrim Railway), Tom EI4HCB, Brian EI8IU, Anthony EI6GGB, Nigel (Cavan and Leitrim Railway), Roger



Figure 11: Brian EI8IU checking the signal levels



Figure 9: from left: Brian EI8IU, Tom EI4HCB, Roger EI6IFB, Nigel & Philip (Cavan and Leitrim Railway), Fergus EI6IB, and Anthony EI6GGB



Figure 10: Anthony EI6GGB, Brian EI8IU, Roger EI6IFB, Tom EI4HCB, and Fergus EI6IB

Forthcoming Events

Shannon Basin Radio Club has a busy schedule of events over the coming months:

July 30th & 31st: Club members plan to set up a station on Inishbofin for the 2022 Islands on the Air (IOTA) contest

September 4th: Lough Rynn Harvest Festival station in Leitrim

September 24th & 25th: SSB Field Day 2022

Enquiries and New Members

Further information about Shannon Basin Radio Club can be found at the club website <https://www.sbrc.ie/> and via their Facebook group. Shannon Basin Radio Club has a very active membership drawn primarily from the midlands and west of Ireland but also further afield in the U.S. The club takes part in a very diverse range of amateur radio-related activities with an emphasis on fun, learning, and experimentation. New members are always welcome, and the club would be delighted to receive enquiries from anyone wishing to learn more.

**Shannon Basin Club PRO
Keith Nolan EI5IN**

Mayo Radio Experimenter's Network

The Mayo Radio Experimenters Network will hold their next club meeting on July 6th at 9.00pm in the Breaffy House Hotel, Breaffy. Everyone is welcome to come along for a chat. It has been a few years since we have done an activation. We will discuss the possibility of activating a lighthouse somewhere on the west coast for the International Lighthouse Lightship Weekend ILLW on the 3rd full weekend in August if there is enough interest to do so. <https://illw.net>. All suggestions, help and advice will be gracefully appreciated for the cause. See you there.

Dundalk Amateur Radio Society

Dundalk Amateur Radio Society is based in Dundalk, Co. Louth Ireland. The society was established in 1969 by a number of like minded amateur radio operators from the Dundalk area. EI7DAR, EI0W, EI2MOG, EI2CCR, EI4FMG and EI7DKD are the amateur radio callsigns issued to the society by ComReg. The Society has its own clubhouse located on the Castletown Road in Dundalk, from this location they hold their monthly meetings and other amateur radio based activities. The next meeting of DARS takes place in their clubhouse at 8:30 pm on Wednesday the 6th of July

North Dublin Radio Club

The North Dublin Radio Club meets weekly in Artane Beaumont Family Recreation Centre, Kilmore Road, Dublin 5 (opposite the roundabout at Artane Castle Shopping Centre) at 8pm. Their club net is held Saturday nights at 20:00 on 145.575 MHz FM Non-members are welcome to join the net, if only to say hello, give and receive a signal report.

Northern Ireland Radio Club Meetings

The Strangford High Frequency Enthusiasts Group is accepting UK-wide enrolments for the next UK Full licence training programme. They also use Google Meets on Monday evenings. It is completely free, email GI0VKP@gmail.com for details or see the QRZ.com entry for GI0VKP.

On Tuesdays **Carrickfergus Amateur Radio Group** meets in the Elim church, North Road, Carrickfergus from 7pm. All visitors are welcome. Info from gi0usx@yahoo.co.uk

Bushvalley Amateur Radio Club has a club net on Tuesday at 8.30pm on 145.300MHz. On Thursday, the club meets at The United Services Club, Roemill Road, Limavady. Contact Jason, MI3UIW, via email to Bushvalleyarc@gmail.com

Would You Like to Promote Your Club and its Activities?

Is your club planning an event in the next month?

Are you planning a club activity?

Are you setting up a new Repeater or Gateway?

Drop us a line or two and we will include your item in the Connacht Regional Newsletter

Galway Radio Club

Our Club Monthly Meetings:

The Galway Radio Club met in the Menlo Park Hotel for the monthly club night. It is generally held on the first Monday of every month, except if it is a Bank Holiday in which case, we meet on the second Monday of the month. It generally a well-attended night – at our last Club night, we had 8 people physically present and another 3 people virtually present at our last meeting.

Our Setup:

The combination of both physical and virtual presences is a challenge, but one that in general works very well. We have a laptop connected to the hotel Wi-Fi and it “connects” to a free and Opensource Video Conferencing tool called Jitsi (<https://jitsi.org/>). The laptop also has an external webcam and microphone (called a Blue “Snowball Ice”) which is great for picking up sounds from the room. The hotel room either has a large projection screen and/or large wall mounted TV connected to the laptop via HDMI. With this, we can show those online everyone in the room, and those in the room everyone online.

A challenge now is that the speakers on the laptop, while fine for a small room, has challenges when there is a larger room. So external speakers (USB based) are next on the shopping list.

Focus:

The focus of our monthly club night is, as a rule, all things Ham Radio is about – learning about new things, sharing information on what works (or doesn't work), showing new (or old) pieces of equipment and giving presentations/demo's where we can. Any “club administration” is handled separately by our committee and only bring to the Monday night meeting anything that the club members need to be made aware of. Of course, Monday night club members can also raise questions/concerns/issues etc. to the committee.

Last Club Night:

Last club night (13-June), we had a very good presentation by Aoife (EI8HOB) on work so far with FT8, SDR and Raspberry PI's, with comparisons on different power usage of different SDR's etc. and some of the additional work that needs to be done. Aoife has some very interesting experiences with using Raspberry PI's on Buoy's to transmit data back to the mainland and so adding this to Amateur Radio is interesting. Aoife is based in Sligo now, so the presentation was done virtually with a Q&A session afterwards.

Stemming from this presentation, in a future club night, we are going to be looking at SSTV from the ISS which will be interesting.

We also started making plans for our annual trip to Inisbofin which has been ongoing for over 30 years. This is always a very enjoyable event and a great way for the club members to get together for a week, to share stories (and the odd pint) and to make contacts with others around the world.

There is also the Shannon Basin Radio Club trip to Bofin for IOTA from 28th - 29th July to 1st - 2nd August – anyone interested in joining this trip should contact Enda (EI2II).

Finally, 7 of our members were heading to the Ham Rally in Friedrichshafen which is another annual event for our members. So, our night ended on who is travelling via. what route to what hotel etc. I won't be going this year – instead I am planning of making the most of our annual trip to Boffin.

Paul, EI5IPB (Secretary)

For Sale - Antenna Tilt Plates



Antenna tilt plates for sale 160 Euro shipped via DPD within EI suitable for Hex, Cobweb and Yagi antennas that are on a tilt mast to make maintenance and repair easier. Overall 30mm thick aluminium plate design, each side of the plate being 15mm. With 30mm on its overlap with stainless steel pivot and nyloc nut hardware for added flexibility. With a set of dual heavy duty V clamps on the upper and

lower plate allow for universal mounting onto a variety of masts and antenna stub masts which can accommodate mast and stub poles up to 50mm in diameter which are then secured into the V clamps by its clamp and Jaw hardware.

These are new and are handmade and never been used.

Contact: Charlie Carolan
087 6265418

or
charlie.carolan@gmail.com

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Yaesu Fusion Repeater

EI2KMR I/P 145.025 O/P 145.625 Wires -X

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Dates for the Diary

Russian Robinson Club Celebration July - Aug 31st

FTMC 5th Anniversary Award 4th - 17th of July

Commonwealth Games 28th July - 8th of Aug

IOTA Contest 30th - 31st of July

International Lighthouse and Lightship Weekend
20th - 21st of August

European Championship Contest 6th of August

Railways on the air 24th and 25th September

RSGB Ham Fest / Convention 7th - 9th of October

AMSAT UK Colloquium 8th - 9th of October

International Air Ambulance week 9th - 17th October

JOTA 14th - 16th of October

RSGB



The Radio Society of Great Britain (RSGB) is the national membership organisation of amateur radio enthusiasts. The society was founded in 1913 and incorporated in 1926. The Society is dedicated to the development of the science and practice of amateur radio. It works to increase awareness and understanding of amateur radio and to make the hobby accessible to everyone. Amateur radio licences were issued to the first UK radio amateurs in 1934. The RSGB represents the interests of UK licensed radio amateurs and is a not-for-profit organization that:

- Promotes the general advancement of the science and practice of radio communication or other relevant subjects.
- Facilitates the exchange of information and ideas on these subjects among its members.

The RSGB aims to obtain the maximum liberty of action consistent with safeguarding the interests of all concerned. RSGB membership is open to all who have an interest in radio communications. The national governing body (The Board) is elected nationally. The regional governing body (The Regional Council) is elected on a regional basis. The day-to-day management of the society is under the control of a small team of full-time employees who are based at the society's head office in Bedford. *RSGB Membership is just £59.00 and this includes 12 monthly technical magazines.* Affiliate your club and get the opportunity for all members to log in and read the online publication of RADCOM, RADCOM Basics and RADCOM Plus as well as receiving a hard copy of the Magazine for the Club. Apply here: <https://rsgb.org/main/join-us/join-the-rsgb/>

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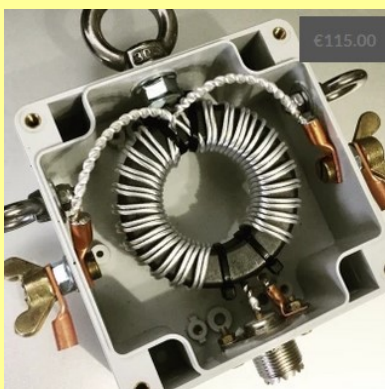
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